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(54) **Use of dexpanthenol in contact lens care compositions**

Verwendung von Dexpanthenol in Kontaktlinsenpflegezusammensetzungen

Utilisation de dexpanthenol dans les compositions d'entretien pour lentilles de contact

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(56) References cited:  
**DE-A- 2 426 757**

- DATABASE WPI Week 196837 Derwent Publications Ltd., London, GB; AN 1988-262735 XP002195280 & SU 1 377 104 A (KBME-R KUIB MED INST), 29 February 1988 (1988-02-29)
- DATABASE WPI Week 199649 Derwent Publications Ltd., London, GB; AN 1996-495831 XP002195281 & RU 2 055 555 C (MARG-I MARGUS M E), 10 March 1996 (1996-03-10)

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## Description

[0001] The current invention relates to the use of dexpantenol as a constituent of a contact lens care composition.

[0002] Because they regularly have unusual objects in their eyes for years contact lens wearers have a higher chance of damaging their cornea, eye-stratum, the endothelium or other parts of the eyes than non-wearers, for example because chemical substances which (may) cause irritation or damage to the eye could be released from the lens or the surface of the lens after inserting the lens into the eyes. Lenses which have not been properly cleaned or damaged lenses as well as dust-particles, traces of sand or pollen which have gotten under the lens could also affect the cornea. These damages or irritations can be superficial and temporary, but could also result in far-reaching consequences since lenses are usually worn daily. Health risks could occur, varying from irritated and red eyes to serious complications such as permanent damage of the cornea resulting in blindness.

[0003] The cause of such complications is multifarious. Placing the contact lens onto the eye disturbs its physiological condition. After habituation a new balance will be reached that can be disturbed again by various factors, such as ageing of the contact lens, damage to and deposit on the lens, change of tear-flow with respect to composition and quantity due to frequency and manner of winking, chemical toxicity of substances the user is in contact with, mechanical pressure and chronic lack of oxygen. The ageing of the user may bring about changes in his or her eyes thereby disturbing the physiological balance. The use of medication or the development of allergies may also lead to irritations or damage of (parts of) the eyes.

[0004] Because nowadays contact lenses are frequently used for longer periods of time careful and regular cleaning has become more important. If this is not done sufficiently for instance bacteria, proteins etc. may cause irritations and damage (more promptly). To prevent permanent damage it is vital that possible damage to the cornea or other parts of the eyes is treated as soon as possible.

[0005] Moreover, contact lens wearers may need to extra protect their eyes. It could be useful to the eyes to dispose of extra nutrition, such as vitamins and provitamins or (also) those substances which offer protection or allow support or accelerate the repair of an occurring damage. In eye healthcare several products are known to assist in the (accelerated) recovery of the soundness of the cornea. These products, however, usually have to be administered (dripped in or applied onto the eye) separately or have to be swallowed by the user.

[0006] It is the aim of the current invention to provide the opportunity for a long-term care or treatment and/or protection and/or care of the eyes.

[0007] Considering the possibilities of irritation and

damage to the cornea, the stratum, the endothelium or other parts of the eyes are manifold, one requires protection, conditioning and, whenever possible, restoration of the sustained damage to the eye. The current invention therefore relates to the use of dexpantenol as a constituent of a contact lens care composition, comprising the impregnation of contact lenses in a solution which contains dexpantenol for the care and/or protection of the eyes. By wearing contact lenses the dexpantenol will be in contact with (part of) the eyes. This way the lens will be a method of administering the dexpantenol which will often imply a more long-lasting administering compared to current eye-drops. The dexpantenol can be either absorbed into the lens material or be attached to them or both. The term 'impregnate' in this application refers to either of these or to a combination of both.

[0008] For the benefit of the user the dexpantenol can be combined with the compounds usually used for disinfecting, cleaning, insertion, moisturizing, rinsing or storing of contact lenses, so that the user need not add these compounds separately. However, it is likewise possible to just impregnate the lenses with the dexpantenol to prevent damage caused by (other) cleaning-agents or disinfectants.

[0009] Products used for maintenance and storage of contact lenses, like cleaning products and disinfecting solutions, and sprays, so-called all-in-one solutions, storage liquids and rinsing liquids, insertion solutions and moisturizers, neutralizers in either liquid or tablet form, gels, coatings and tablets which either make or assist in making contact lens solutions or make solutions come into being or are used for or in such solutions.

[0010] According to the current invention the composition can therefore appear in various forms, such as a solution, spray or tablet which after dissolution makes a solution. Compounds intended for the care of contact lenses may also be part of a tablet which is combined with a solution that contains the care, treatment or protection agent or the reverse. Obviously both could also be included in one tablet or in separate tablets. Even so compounds can be included in a solution that is (to be) mixed with a solution without a compound.

[0011] Since the current substances which necessarily have to be applied for their germicidal and preservative effects in eye-care solutions, eye-drops and contact lens care solutions and which are germicidal in a short period of time and sufficiently limiting increase in germ population usually have the disadvantage of causing irritation or even attacking the eye to a large or lesser degree it would be greatly advantageous to use dexpantenol in eye-care solutions, eye-drops and contact lens solutions for germicidal or conservation purposes which are non-irritant or protect against these irritations or damages. Possible damage and irritation of the cornea or other parts of the eye will thus be avoided.

[0012] The composition according to the current invention can be applied when impregnating all kinds of

contact lenses, especially and preferably soft lenses, but also hard lenses, disposable lenses and long-lasting ones as well as extended wear lenses and intra-ocular lenses would benefit. Impregnation can be carried out by the user, for instance during maintenance, but also, as with new lenses, in the delivery packaging.

[0013] It is not necessary for the user using the contact lenses according to the current invention to be already familiar with wearing lenses. People, and even animals, who in fact do not need any eye-correction, but who require for instance certain nutrients for the eye or products to (possibly) set off, support or accelerate healing sores or injuries could wear contact lenses or similar objects according to the current invention on or in the eye to facilitate the required compound(s) on or into the eye. It is not necessary for the active component with which contact lenses have been impregnated to repair or prevent any damage.

[0014] Applications of contact lenses according to the current invention could be found in the treatment of so-called 'dry eyes' or irritated or red eyes, hence called 'dry eyes'. Currently mainly eye-drops are used to treat this. Such eye-drops, however, usually offer only short-term relief. In order to lengthen the availability of the active agents for the treatment of the eyes several complex or expensive possibilities for slow-release eye-drops have been proposed. The contact lenses according to the current invention offer a simple, cheap and elegant alternative.

[0015] It could be particularly advantageous to use the dexpanthenol suggested in the current invention as giving relief to dry eyes in combination with polymers from which is known or believed that they, when used in eye-drops, offer relief, such as polymers of the type PVP, PVA, HPMC, HPC, Carbomere or Dextrane.

[0016] Moreover, the use of contact lenses according to the current invention will generally result in a more constant level of the effective agent at the point of application than would have been possible with the use of eye-drops or even eye-balm. Eye-balm also has the disadvantages of causing limited eyedight directly after application and a less easy way of application for some users compared to applying contact lenses. For wearers of contact lenses the use of the current invention with their own lenses is particularly economical, because they do not need to perform any supplementary actions.

[0017] An advantage of the current invention is that the price of contact lenses has dropped considerably over the last few years especially that of short-term use lenses such as the so-called day-lenses, week-lenses, month-lenses or three-months-lenses. Such lenses are a preferable embodiment of the current invention.

[0018] The current invention will be illustrated in the following examples:

#### EXAMPLES

[0019] Examples of compositions to be used in the

procedure according to the current invention are the following:

#### A. All-in-one solutions:

1. PHMB HCl 2.5 ppm
2. Boric Acid 0.75%
3. Borax 0.15%
4. NaCl 0.40%
5. EDTA-Na 0.03%
6. HPMC 10,000 0.10%
7. Dexpanthenol 1.0%
8. pH adaptation with NaOH or HCL ad pH 7.4

#### Claims

1. Use of dexpanthenol as a constituent of a contact lens care composition.
2. Use according to claim 1, wherein the contact lens care composition comprises one or more constituents selected from the group consisting of PVP, PVA, HPMC, HPC, Carbomere, and Dextrane.
3. Use according to claim 2, wherein the contact lens care composition comprises dexpanthenol and HPC.
4. Use according to claim 2, wherein the contact lens care composition comprises dexpanthenol and HPMC.
5. Use according to any of the claims 1-4, wherein the contact lens care composition comprises one or more further constituents selected from the group consisting of buffer substances, substances that affect the tonicity, surface-active substances, substances that affect viscosity, complexing agents, moisturizing agents, and antimicrobial compounds.
6. Use according to claim 5, wherein the contact lens care composition comprises dexpanthenol, HPMC, NaCl, and EDTA-Na.
7. Use according to claim 6, wherein the contact lens care composition comprises
  - PHMB HCl 0.5-5 ppm
  - Boric acid 0-1%
  - Borax 0-0.3%
  - NaCl 0.09-0.9%
  - EDTA-Na 0.01-0.1%
  - HPMC 10,000 0.1-0.30%
  - Dexpanthenol 0.1-5%
8. Use according to any of the claims 1-7, wherein the contact lens care composition takes the form of a

spray, solution, gel, coating and/or tablet.

9. Use according to any of the claims 1-8, wherein the use comprises the storage of a contact lens in the contact lens care composition.
10. Use according to any of the claims 1-9, wherein the contact lens care composition is a day-lens contact lens care composition.
11. Use according to claim 10, wherein the use comprises the storage of a day-lens contact lens in the contact lens care composition.
12. Use of dextranthenol for the preparation of a contact lens care composition for the treatment of the eye.
13. Use according to claim 11, wherein the treatment is the treatment of dry and/or irritated eyes during contact lens wear.

#### Patentansprüche

1. Verwendung von Dexpanthenol als ein Bestandteil einer Kontaktlinsepflegezusammensetzung.
2. Verwendung gemäß Anspruch 1, wobei die Kontaktlinsepflegezusammensetzung eine oder mehrere Bestandteile umfasst, ausgewählt aus einer Gruppe bestehend aus PVP, PVA, HPMC, HPC, Carbomere und Dextran.
3. Verwendung gemäß Anspruch 2, wobei die Kontaktlinsepflegezusammensetzung Dexpanthenol und HPC umfasst.
4. Verwendung gemäß Anspruch 2, wobei die Kontaktlinsepflegezusammensetzung Dexpanthenol und HPMC umfasst.
5. Verwendung gemäß einem der Ansprüche 1 bis 4, wobei die Kontaktlinsepflegezusammensetzung einen oder mehrere weitere Bestandteile umfasst, ausgewählt aus einer Gruppe bestehend aus Puffersubstanzen, die Tonizität beeinflussende Substanzen, oberflächenaktive Substanzen, die Viskosität beeinflussende Substanzen, komplexbildende Mittel, Feuchtigkeitsmittel und antimikrobiell wirkende Verbindungen.
6. Verwendung gemäß Anspruch 5, wobei die Kontaktlinsepflegezusammensetzung Dexpanthenol, HPMC, NaCl und EDTA-Na umfasst.
7. Verwendung gemäß Anspruch 6, wobei die Kontaktlinsepflegezusammensetzung

- PHMB HCl 0,5-5 ppm
- Borsäure 0-1%
- Borax 0-0,3%
- NaCl 0,09-0,9%
- EDTA-Na 0,01-0,1%
- HPMC 10,000 0,1-0,30%
- Dexpanthenol 0,1-5%

umfasst.

8. Verwendung gemäß einem der Ansprüche 1 bis 7, wobei die Kontaktlinsepflegezusammensetzung in Form eines Spray, einer Lösung, eines Gels, einer Beschichtung und/oder Tablette zur Verfügung gestellt ist.
9. Verwendung gemäß einem der Ansprüche 1 bis 8, wobei die Verwendung umfasst die Lagerung von Kontaktlinsen in der Kontaktlinsepflegezusammensetzung.
10. Verwendung gemäß einem der Ansprüche 1 bis 9, wobei die Kontaktlinsepflegezusammensetzung eine Tageslinse-Kontaktlinsepflegezusammensetzung ist.
11. Verwendung gemäß Anspruch 10, wobei die Verwendung umfasst die Lagerung von Tageslinsen-Kontaktlinsen in der Kontaktlinsepflegezusammensetzung.
12. Verwendung von Dexpanthenol für die Herstellung einer Kontaktlinsepflegezusammensetzung zur Behandlung von Augen.
13. Verwendung gemäß Anspruch 11, wobei die Behandlung eine Behandlung von trockenen und/oder gereizten Augen während des Tragens von Kontaktlinsen ist.

#### Revendications

1. Utilisation de dexpanthénol à titre de constituant d'une composition de nettoyage de lentilles de contact.
2. Utilisation selon la revendication 1, dans laquelle la composition de nettoyage de lentilles de contact comprend un ou plusieurs constituants choisis dans le groupe composé du PVP, PVA, HPMC, HPC, Carbomère, et Dextrane.
3. Utilisation selon la revendication 2, dans laquelle la composition de nettoyage de lentilles de contact comprend du dexpanthénol et HPC.
4. Utilisation selon la revendication 2, dans laquelle la

composition de nettoyage de lentilles de contact comprend du dexpanthénol et HPMC.

irrités pendant le port des lentilles de contact.

5. Utilisation selon l'une quelconque des revendications 1 à 4, dans laquelle la composition de nettoyage de lentilles de contact comprend un ou plusieurs autres constituants choisis dans le groupe composé des substances de type tampon, des substances qui affectent la tonicité, des substances tensioactives, des substances qui affectent la viscosité, des complexants, des agents hydratants, et des composés antimicrobiens. 5 10
6. Utilisation selon la revendication 5, dans laquelle la composition de nettoyage de lentilles de contact comprend du dexpanthénol. HPMC, NaCl et EDTA-Na. 15
7. Utilisation selon la revendication 6, dans laquelle la composition de nettoyage de lentilles de contact comprend : 20
  - PHMB HCl 0,5-5 ppm
  - Acide borique 0-1 %
  - Borax 0-0,3 % 25
  - NaCl 0,09-0,9 %
  - EDTA-Na 0,01-0,1 %
  - HPMC 10 000 0,1-0,30 %
  - Dexpanthénol 0,1-5 % 30
8. Utilisation selon l'une quelconque des revendications 1 à 7, dans laquelle la composition de nettoyage de lentilles de contact prend la forme d'une atomisation, d'une solution, d'un gel, d'un revêtement et/ou d'un comprimé. 35
9. Utilisation selon l'une quelconque des revendications 1 à 8, dans laquelle l'utilisation comprend le stockage d'une lentille de contact dans la composition de nettoyage de lentilles de contact. 40
10. Utilisation selon l'une quelconque des revendications 1 à 9, dans laquelle la composition de nettoyage de lentilles de contact est une composition de nettoyage pour lentilles de contact de type lentilles jetables journalières. 45
11. Utilisation selon la revendication 10, dans laquelle l'utilisation comprend le stockage d'une lentille jetable journalière dans la composition de nettoyage de lentilles de contact. 50
12. Utilisation de dexpanthénol pour la préparation d'une composition de nettoyage de lentilles de contact pour le traitement de l'oeil. 55
13. Utilisation selon la revendication 11, dans laquelle le traitement est le traitement des yeux secs et/ou